

Kcnh7 Cas9-CKO Strategy

Designer:

Qiong Zhou

Project Overview

Project Name

Kcnh7

Project type

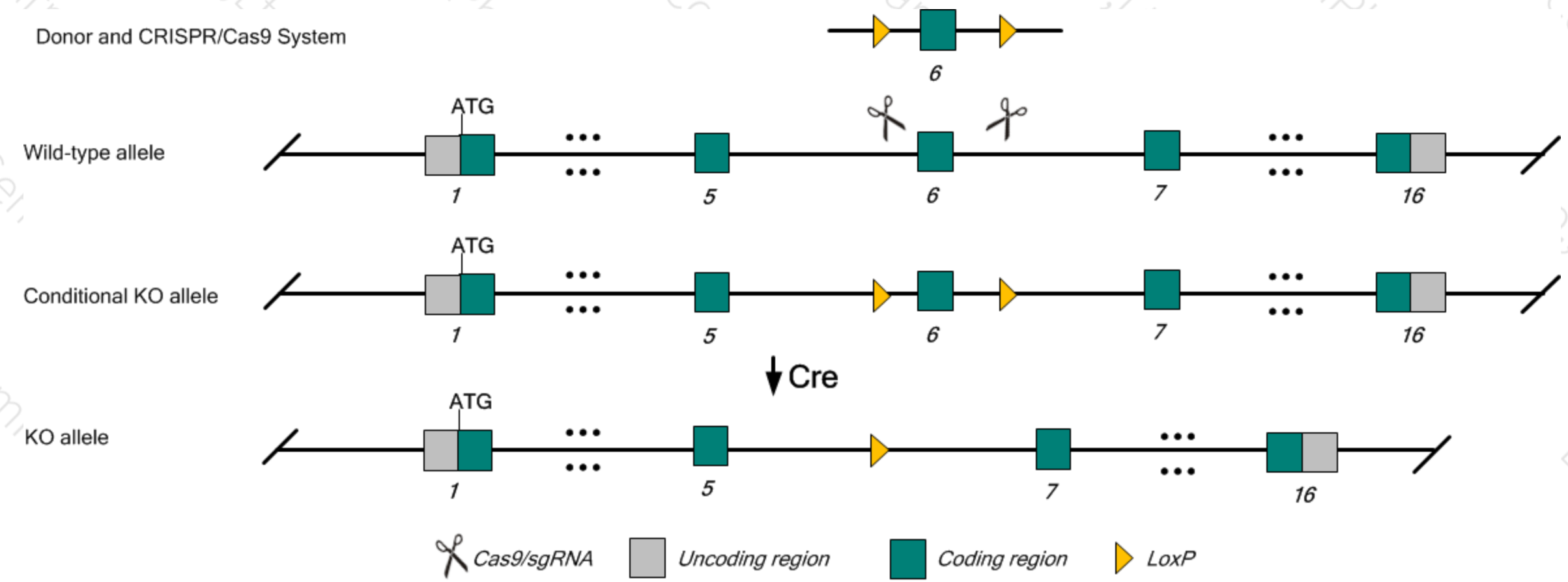
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Kcnh7* gene. The schematic diagram is as follows:



- The *Kcnh7* gene has 4 transcripts, According to the structure of *Kcnh7* gene, exon6 of *Kcnh7-201* transcript is recommended as the knockout region. The region contains the 215bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Kcnh7* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The *Kcnh7* gene is located on the Chr2. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Kcnh7 potassium voltage-gated channel, subfamily H (eag-related), member 7 [*Mus musculus* (house mouse)]

Gene ID: 170738, updated on 31-Jan-2019

Summary

Official Symbol	Kcnh7 provided by MGI
Official Full Name	potassium voltage-gated channel, subfamily H (eag-related), member 7 provided by MGI
Primary source	MGI:MGI:2159566
See related	Ensembl:ENSMUSG00000059742
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	erg3; Kv11.3; 9330137I11Rik
Expression	Biased expression in cortex adult (RPKM 1.9), frontal lobe adult (RPKM 1.4) and 5 other tissues See more
Orthologs	human all

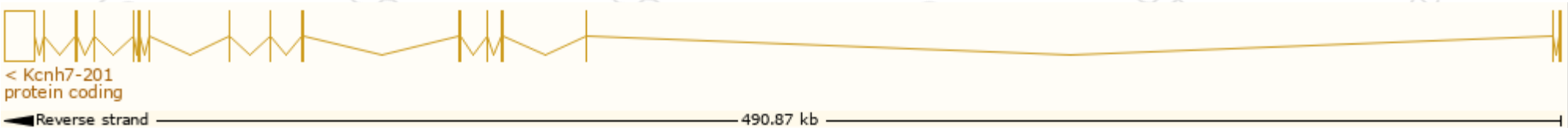
Transcript information (Ensembl)



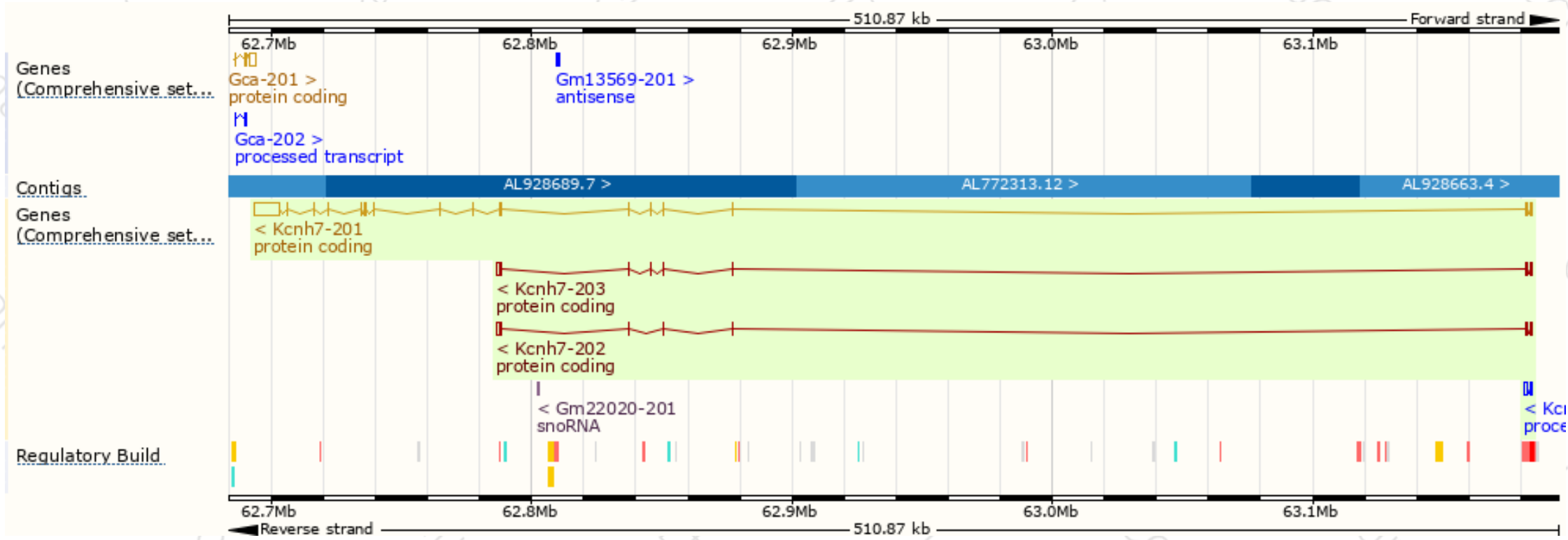
The gene has 4 transcripts, and all transcripts are shown below :

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Kcnh7-201	ENSMUST00000075052.9	13321	1195aa	Protein coding	CCDS38128	Q9ER47	NM_133207 NP_573470	TSL:1 Gencode basic APPRIS P1
Kcnh7-203	ENSMUST00000112454.7	3073	522aa	Protein coding	-	Q8CC38	-	TSL:1 Gencode basic
Kcnh7-202	ENSMUST00000112452.1	2849	515aa	Protein coding	-	Q8C782	-	TSL:1 Gencode basic
Kcnh7-204	ENSMUST00000131799.1	1079	No protein	Processed transcript	-	-	-	TSL:1

The strategy is based on the design of *Kcnh7-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 025-5864 1534

